Salix exigua / Barren Shrubland

MAP CLASS	Sandbar Willow Shrubland
COMMON NAME	Coyote Willow / Barren Shrubland
PHYSIOGNOMIC CLASS	Shrubland (III.)
PHYSIOGNOMIC SUBCLASS	Deciduous shrubland (III.B.)
PHYSIOGNOMIC GROUP	Cold-deciduous shrubland (III.B.2.)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (III.B.2.N.)
FORMATION	Temporarily flooded cold-deciduous shrubland (III.B.2.N.d.)
ALLIANCE	*Salix (exigua, interior)* Temporarily Flooded Shrubland Alliance

CLASSIFICATION CONFIDENCE LEVEL Strong

USFS WETLAND SYSTEM Palustrine

RANGE

Wupatki National Monument

Coyote Willow (sandbar willow) / Barren Shrubland has been only identified at Wupatki NM on the Little Colorado River. One relevé was identified on the east shore banks of the Little Colorado River, north of Black Falls Crossing. Only one small stand was sampled of this association, which may be due to *Tamarix* spp., a non-native invasive, possibly out-competing with the native *Salix exigua*. With more extensive sampling on the banks of the Little Colorado River more examples of this association may be revealed; however, it is likely that this association is diminishing within the project environs.

Globally

This riparian shrubland association is common at lower to middle elevations in the Great Basin, Colorado Plateau and Rocky Mountains extending out into the western Great Plains along major rivers.

ENVIRONMENTAL DESCRIPTION

Wupatki National Monument

This association was measured on the flat sandy riverbanks of the Little Colorado River at 4,268 ft (1,301 m).

Globally

This riparian shrubland is common in the Rocky Mountains, Colorado Plateau and Great Basin. Elevation ranges from 2,559-8,530 ft (780-2600 m). This association occurs within the annual flood zone of rivers on point bars, islands, sand or cobble bars, and on streambanks occurring along a wide variety of stream reaches, from moderately sinuous and moderate-gradient reaches. It can form large, wide stands on mid-channel islands in larger rivers or narrow stringer bands on small, rocky tributaries. Substrates are typically coarse alluvial deposits of sand, silt and cobbles that are highly stratified vertically from flooding scour and deposition, often consisting of alternating layers of finer textured soil with organic material over coarser alluvium. Occasionally, this association occurs on deep pockets of sand. The lack of soil development and high ground cover of coarse alluvial material are key indicators for this association.

MOST ABUNDANT SPECIES

Wupatki National Monument

Stratum	Species
Shrub	*Salix exigua*

Globally

Stratum	Species
Shrub	*Salix exigua*

ASSOCIATED SPECIES

Wupatki National Monument

Alhagi maurorum, Tamarix chinensis

Globally
Alnus incana, Salix monticola, Salix ligulifolia, Salix irrorata, Salix lucida, Acer negundo, Abies lasiocarpa, Populus angustifolia, Populus deltoides, Populus fremontii, Mentha arvensis, *Carex* spp., *Eleocharis* spp., *Juncus* spp., *Schoenoplectus* spp., *Equisetum* spp.

VEGETATION DESCRIPTION
Wupatki National Monument
Coyote Willow / Barren Shrubland total vegetation cover was 71%, with 71% absolute cover in the shrub layer and no species in the herbaceous layer. Within the one relevé sampled the total species diversity was 7.

The shrub layer is dense and consists solely of *Salix exigua*. The herbaceous layer is barren with no species occurring in this layer, as is indicated in the association nomenclature.

Globally
This riparian association is characterized by a sparse to dense tall-shrub (1.5-3 m) canopy composed of *Salix exigua* with ground cover of exposed gravel, cobbles or sand. Relatively low cover of several other shrubs and trees may be present including *Alnus incana, Salix monticola, Salix ligulifolia (= Salix eriocephala* var. *ligulifolia), Salix irrorata, Salix lucida, Acer negundo, Abies lasiocarpa, Populus angustifolia, Populus deltoides*, and *Populus fremontii*. A sparse herbaceous layer may be present among the bare soil, gravel, cobbles, or boulders consisting of a wide variety of forbs and graminoids. *Mentha arvensis*, and species of *Carex, Eleocharis, Juncus, Schoenoplectus*, and *Equisetum* are often present. Introduced species, such as *Elaeagnus angustifolia, Tamarix* spp., *Bromus tectorum, Bromus inermis, Elymus repens (= Elytrigia repens), Poa pratensis, Agrostis stolonifera* (and other exotic forage species), *Taraxacum officinale, Conyza canadensis*, and *Lepidium latifolium*, have been reported from some stands.

CONSERVATION RANK G5

DATABASE CODE CEGL001200

MAP CLASSES
The association Coyote Willow / Barren Shrubland is represented by the map class Sandbar Willow Shrubland (map code 25).

The total area mapped within Wupatki NM is 3 ac (1 ha) within 5 polygons and the total area in the park environs is 20 ac (8 ha) within 28 polygons.

COMMENTS
Wupatki National Monument
The Little Colorado River riverbanks can alter significantly depending on the flooding regime, therefore it is likely that the riverbed has changed from when the photography was taken to when the field sampling was conducted. This map class is likely to change throughout time and should be reassessed annually to determine change in the riverbeds and the vegetation communities.

Only one relevé was assigned to this association, which may be due to a not enough relevés sampled on the Little Colorado River as well as small populations sizes within the project boundaries.

Globally
In the western Great Plains this association includes stands composed of intermediates between *Salix interior (= Salix exigua* ssp. *interior)* and *Salix exigua (= Salix exigua* ssp. *exigua)* (Dorn 1997, G. Kittel pers. comm. 2001). Until recently these taxa were combined at the species level (Kartesz 1999). More information on the distribution of introgression between *Salix interior (= Salix exigua* ssp. *interior)* and *Salix exigua (= Salix exigua* ssp. *exigua)* is needed to fully understand the ranges of these two species.

This association is an early-seral type that colonizes newly created point bars and other recent alluvial deposits formed in rivers and streams (Kittel et al. 1999). Competition with *Tamarix* spp. in the southwestern U.S. likely limit the abundance of this association where these introduced species dominate.

REFERENCES

Bourgeron and Engelking 1994, Christy 1973, Cowardin et al. 1979, Dorn 1997, Driscoll et al. 1984, Hall and Hansen 1997, Hansen et al. 1995, Johnston 1987, Jones and Walford 1995, Kittel and Lederer 1993, Kittel et al. 1994, Kittel et al. 1995, Kittel et al. 1996, Kittel et al. 1999, Muldavin et al. 2000b, Padgett et al. 1988, Padgett et al. 1989, Tuhy and Jensen 1982, Von Loh et al. 2002